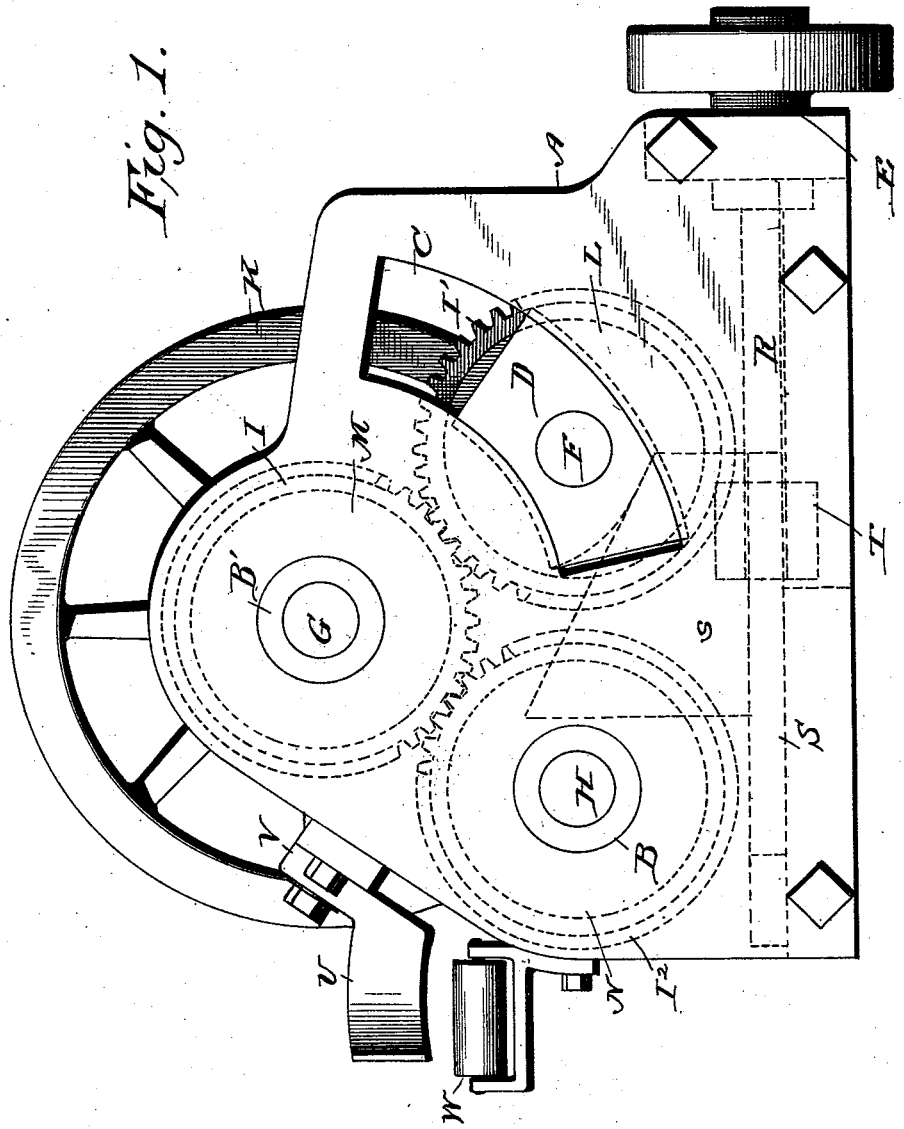
(No Model.) 3 Sheets—Sheet 1.

J. PLEUKHARP & T. SCHRAMM.

MACHINE FOR FLARING AND BENDING HOOPS.

No. 522,487. Patented July 3, 1894.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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MACHINE FOR FLARING AND BENDING HOOPS.

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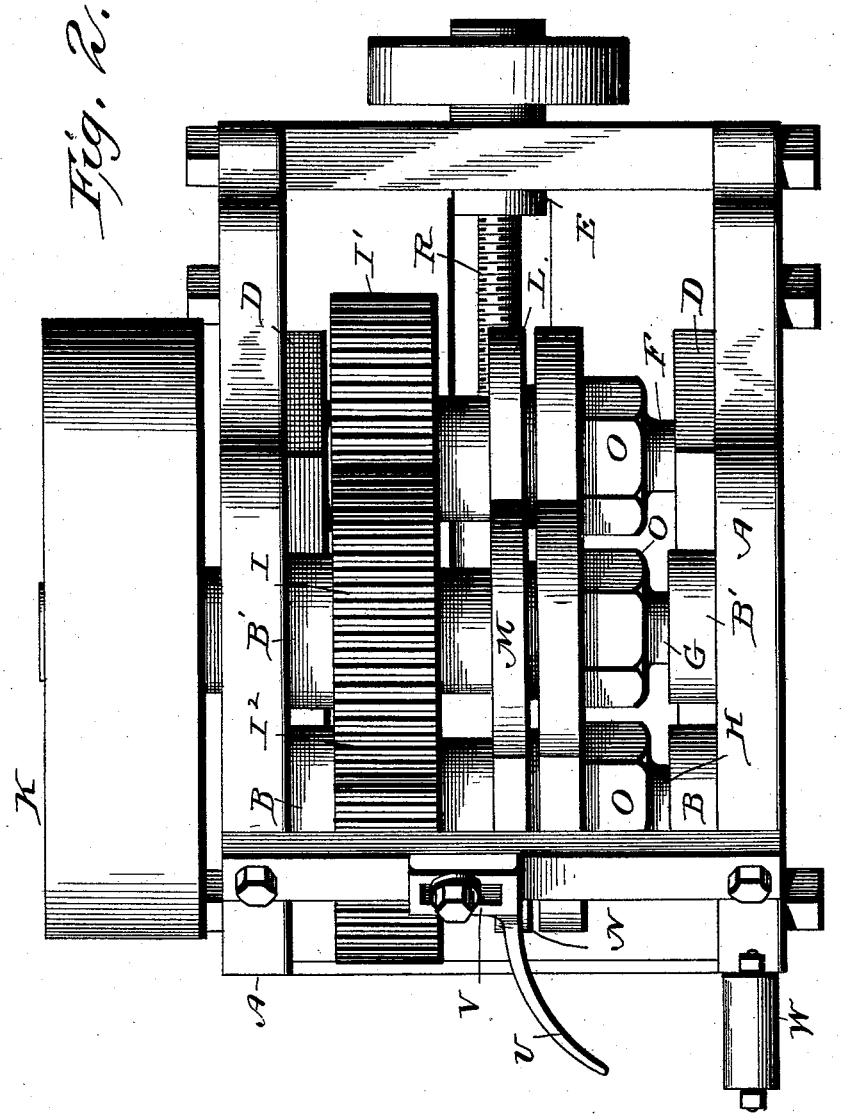
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

J. PLEUKHARP & T. SCHRAMM.

MACHINE FOR FLARING AND BENDING HOOPS.

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Fig. 3.

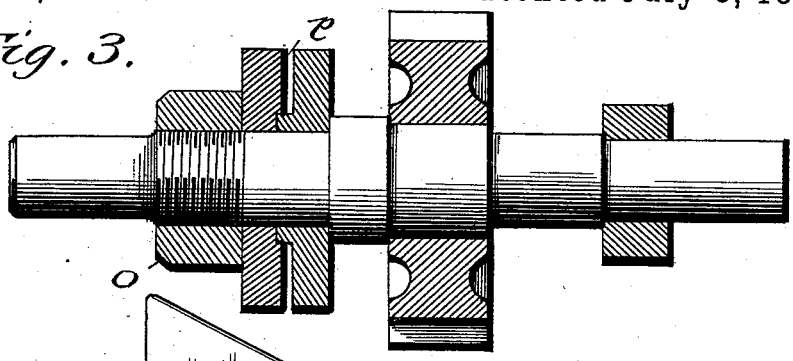


Fig. 4.

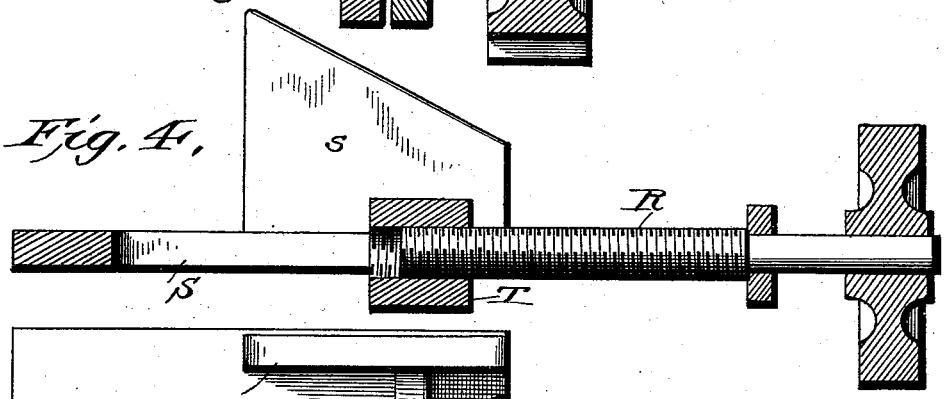


Fig. 5.

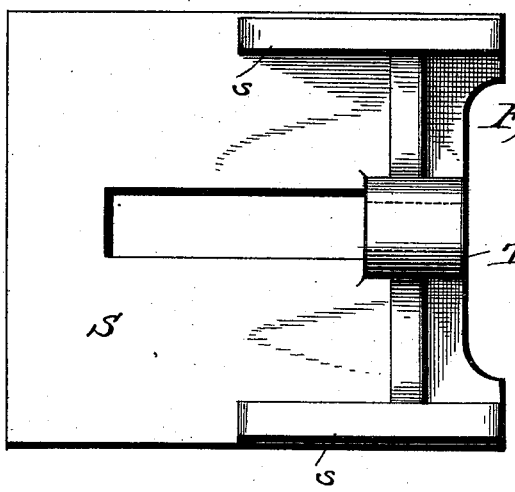


Fig. 7.

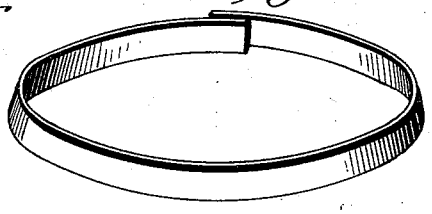
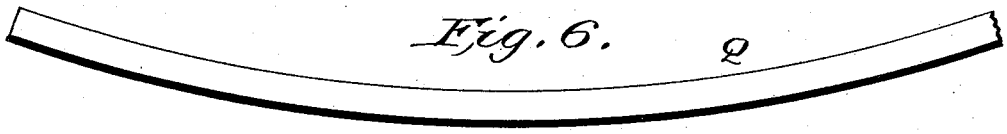


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES PLEUKHARP AND THEOBALD SCHRAMM, OF COLUMBUS, OHIO.

MACHINE FOR FLARING AND BENDING HOOPS.

SPECIFICATION forming part of Letters Patent No. 522,487, dated July 3, 1894.

Application filed May 20, 1893. Serial No. 474,906. (No model.)

To all whom it may concern:

Be it known that we, JAMES PLEUKHARP and THEOBALD SCHRAMM, citizens of the United States, residing at Columbus, in the county of Franklin, State of Ohio, have invented certain new and useful Improvements in Machines for Flaring and Bending Hoops; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved machine for flaring and bending the hoop iron, for making hoops for barrels, tubs, &c.

It has for its object to simplify the adjustments of the operating parts of the machine and to secure greater uniformity in the product.

The ordinary method of bending the hoops used in common practice is that of passing the hoop iron flatwise between three rolls, one arranged above and with its axis parallel to and midway between the other two and adjustably related to them. To flare the hoops, these rollers are made conical in form. The difficulties arising in the use of a machine of this description are the proper adjustment of the rollers to obtain the degree of flare and bending required and to secure uniformity in the product, the thin flat strips varying greatly in their resistance to bending and the stretching due to flaring.

In the machine which is the subject of this invention the hoop iron is passed between the rollers edgewise, grooves being provided in the rollers to hold it straight while it is being passed between them. Thus there is a stretching of the lower fibers of the iron and an upsetting of the upper, the hoop coming out of the rollers in the form of an arc of a circle. The metal operated upon being the equivalent in thickness of the width of the hoop, great uniformity is the result. Simplicity and delicacy of adjustment to obtain the degree of flare desired are secured by making the bearings of one of the lower rollers move in the arc of a circle whose center is the axis of the top rollers. For bending or shaping the hoop, a curved guide is so attached to the frame supporting the rollers that the hoop iron as it comes from the rollers is made to impinge against it and is bent by being turned out of its course. This guide being made adjustable, the degree of bending is easily secured.

The invention consists of the novel features and the peculiar construction and combination of the parts which will be hereinafter more fully described and claimed and which are shown in the annexed drawings, in which—

Figure 1 is a side elevation of a machine embodying the invention. Fig. 2 is a top plan view of the machine. Fig. 3 is a side elevation of a shaft, showing in section the roller and the gear wheel mounted thereon. Fig. 4 is a detail view of the instrumentalities for adjusting the movable roller. Fig. 5 is a top plan view of the plate provided with the inclined blocks for adjusting the bearings of the shaft carrying the movable roller. Fig. 6 is a detail view of the hoop blank as it appears after being bent to produce the flare, one end being broken away. Fig. 7 is a view of the finished hoop prior to riveting the ends together.

A A is the frame of the machine which is preferably made of separate side cast plates and bolted together. It is provided with bearings B B′ E and guide-ways C. In these guide-ways are fitted the slides D which also serve as the bearings for the roller shaft F, and permit of its being moved for adjustment in the arc of a circle whose center is the axis of the roller shaft G fitted in the bearings B′. The roller shaft H is fitted in the bearings B. The roller shafts are provided with the gear wheels I I′ and I^2 which mesh together. The roller shaft G is provided with the pulley K by which power is imparted to the machine. The rollers L, M and N are each made in two pieces as shown most clearly in Fig. 3, held together by means of the screw nut O and a shoulder on the shaft, and forming the grooves *p*. Fitted in the bearing E is the adjusting screw R which is made to engage with the slide S by means of the screw nut T.

Bolted to the frame A is the bending device U which consists of a piece formed in the arc of a circle and is provided with the slotted base portion V by means of which and a suitable binding screw it is adjustably con-

nected with the frame of the machine. Attached to the frame A is also the roller W which serves to guide the flared and bent hoop out and away from the machine. The inclined faces of the adjustment slides S are adapted to engage with the bearing slides D fitted in the guide ways C.

In operation, the hoop iron Q cut to a proper length, is fed between the rollers edgewise, by means of which it is upset on its inner edge and stretched on its outer, forming the arc of a circle as shown in Fig. 6, thus giving the flare, which may be adjusted to the proper amount by means of the screw R operating the slide S, the vertical portions *s* of which engaging slides D, by which the bearings of the movable shaft F are made to move in the arc of a circle whose center is the axis of the shaft G. The hoop iron is fed between the rollers through the grooves *p p* which are made adjustable for different thicknesses or gages by means of the screw nut *o*, and fitted to receive and hold the hoop iron edgewise preventing all crumpling or buckling of the iron in the bending edgewise to produce the flare. Coming from between the rollers, this flared or edgewise bent hoop iron is made to impinge against the curved guide U by which it is bent flatwise in the form of a circle, this flatwise bending being sufficient to bring the edges of the iron back into a plane. The proper amount of flatwise bending is secured by the adjustment of the guide U toward or away from the end of the groove *p*, by means of the slot V and binding screw. The hoop thus flared and bent is guided out and away from the machine by means of the roller W.

Where the machine is designed to flare hoop iron of a given and uniform thickness, the grooved rollers may be integrally formed and provided with the groove *p* of proper width, but for general use it is preferable to construct the said rollers of two parts, one part being centrally recessed, the other part having a raised or projecting portion to fit into the said recess and form a bearing for the hoop iron at all relative adjustments of the parts constituting the flaring roller. By loosening the nut O the parts of the flaring roller will separate, as will be readily understood.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a hoop flaring machine the combination with an upper and lower fixed roller, and an adjustable lower roller said roller being adjustable in the arc of a circle the center of which coincides with the center of the upper roller, all of said rollers having a narrow groove to receive the hoop or band edgewise, substantially as shown and described.

2. In a hoop flaring and bending machine, the combination with a series of rollers to flare the hoop iron edgewise, of a curved guide disposed to bend and curve the hoop laterally, and a roller located in a plane lower than and to one side of the said curved guide, substantially as and for the purpose described.

3. In a hoop flaring and bending machine, the combination with a series of rollers to flare the hoop iron edgewise, of a curved guide disposed to bend and curve the hoop laterally, and means for adjusting the said guide laterally to vary the curve or bend of the hoop iron to suit the size of the required hoop, substantially as set forth.

4. In a hoop flaring machine, the combination of a series of three rollers, L, M, and N, guides for the bearings of the roller L formed on the arc of circles whose centers coincide with the axis of the roller M, a slide having inclined portions to engage with the said bearings, and a screw for moving the said slide to adjust the bearings to change the relative position of the said roller L, substantially as and for the purpose described.

5. In a machine for flaring hoops the combination with a frame having slotted sides, bearings arranged within the slots, rollers journaled between the sides, a roller journaled in the bearings, a slide having an inclined face adapted to bear upon the bearings and adjust the same and means for moving the said slide back or forth, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES PLEUKHARP.
THEOBALD SCHRAMM.

Witnesses:
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JNO. O. MCDOWELL.